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RULE 466
Pumps And Compressors

(a) Definitions

For the purpose of this rule:

(1) Reactive Organic Compound means any chemical compound which contains the element carbon, which has a Reid vapor pressure (RVP) greater than 80 mm Hg (1.55 pounds per square inch), or an absolute vapor pressure (AVP) greater than 36 mm Hg (0.7 psi) at 20ºC excluding carbon monoxide, carbon dioxide, carbonic acid, carbonates and metallic carbides and excluding methane, 1,1,1-trichloroethane, methylene chloride, trifluoromethane, and chlorinated-fluorinated hydrocarbons.

(2) A Working Day is any day of the week except Saturday or Sunday or employee holiday.

(3) Commercial Natural Gas means a mixture of gaseous hydrocarbons, chiefly methane, of pipeline quality such as that obtained from a company licensed to dispense such gases.

(b) Requirements

(1) A person shall not use any pump or compressor handling reactive organic compounds unless such pump or compressor is equipped with adequate seals in good working order or other devices of equal or greater efficiency. Such seals or devices shall be maintained so that there shall not be, during operation or during non-operation:

(A) A leakage of more than three drops per minute.

(B) A visible liquid mist.

(C) Any visible indication of leakage at or near the seal/shaft interface for gas compressors.

(2) Any pump or compressor found to leak gaseous volatile organic compounds in excess of 10,000 ppm, measured as hexane, when measured at the potential source with a portable hydrocarbon detection instrument, shall be repaired as follows:

(A) Any pump or compressor having an operable spare permanently connected in the system shall be shut down or the spare pump or compressor placed in service, upon discovery of the leak. Such spare devices shall be inspected with a portable hydrocarbon detection instrument within 48 hours after they have been placed in service. A leaking spare pump or compressor shall be repaired within fifteen working days to a leakage rate of 10,000 ppm or less. If, after repairs are completed, the gaseous leakage rate from the unit is greater than 10,000 ppm when measured at the source with a portable hydrocarbon detection device, one of the following actions shall be taken:

(i) Vent the emissions to an air pollution control device, or
(ii) Petition the Hearing Board for a variance, or
(iii) Repair or replace the leaking pump or compressor at the next turnaround of the process unit such that the leakage is less than 10,000 ppm. Units to be repaired or replaced at the turnaround shall be tagged to that effect, or otherwise conspicuously marked or coded in a manner easily identifiable to District personnel.

(B) Any pump or compressor having no operable spare permanently connected in the system shall be:

(i) Repaired within one working day of discovery of the leak in such a manner that the leakage is minimized; and
(ii) Repaired or replaced at the next scheduled turnaround of the process unit such that the leakage is less than 10,000 ppm.
(iii) If, after repairs are completed, the leakage rate is greater than 10,000 ppm, then the leak shall be vented to an air pollution control device, or a petition for variance shall be submitted to the Hearing Board.

(c) Inspection Schedule

Persons subject to this rule shall:

(1) Inspect each operating pump and compressor for any visual leakage once during every 24 hours of operation, except as provided in subsections (c)(2) and (c)(3) of this rule.

(2) Inspect each operating pump and compressor less than three miles from a continuously manned control center for any visual leakage once during every eight-hour period.

(3) Inspect each pump used in crude oil production and pipeline transfer for any visible leakage once each week.

(4) Inspect each pump annually and each compressor quarterly with a portable hydrocarbon detection instrument for gaseous leaks of VOC in excess of 10,000 ppm measured as hexane at the potential source, however, the actual measurement shall be performed per subsection (f)(2).

(5) Reinspect and repair at the end of six months those pumps of subsection (b)(2)(A) found to be leaking at the annual inspection.

(d) Exemptions

(1) The provisions of this rule shall not apply to any pump or compressor which:

(A) Operates at temperatures in excess of 260ºC (500ºF).

(B) Is vented to an air pollution control system.

(C) Is shut down and tagged or logged for maintenance.

(D) Handles liquids or gases with a water content of 80 percent or greater.

(E) Handles liquids or gases with a hydrogen composition of 80 percent or greater.

(F) Handles commercial natural gas exclusively.

(G) Incorporates dual seals with seal oil barriers, or an equivalent design approved by the Executive Officer, provided that the gases emitted from the seal oil reservoir or vented to the atmosphere are in compliance with the requirements of section (b)(2).

(2) The provisions of section (b)(2) of this rule shall not apply to:

(A) Any reciprocating pump used in crude oil production and pipeline transfer.

(B) Any pump or compressor which has a driver of less than one (1) horsepower or equivalent rated energy.

(e) Recordkeeping

Each operator of a pump or compressor shall maintain records of inspections required by section (c)(4) in a manner specified by the Executive Officer.

(f) Measurement Requirements

(1) The portable detection instruments used for the measurement of gaseous reactive organic compounds shall be equated to calibrating with hexane while sampling at one liter per minute.

(2) Measurement of gaseous leakage rates shall be conducted:

(A) At a distance of one centimeter from the source, or

(B) As an alternative, the following concentration versus distance relationships may be used at the operator's option where the one centimeter distance is unsafe or impractical:

	Equivalent Concentration PPM at:			
Requirement at 1 Cm	2 Cm	3 Cm	4 Cm	5 Cm
10,000	6,000	4,000	2,000	1,000
50,000	28,000	16,000	9,000	5,000

Where an alternative distance from the source is used, the Executive Officer may require that the reason for the increased distance be verified and that the alternative distance be recorded for the specific pump or compressor, and, further, that such distance be used for all subsequent concentration measurements for the specific pump or compressor.

[SIP: Approved 1/15/87, 562 FR 1627, 40 CFR 52.220(c)(166)(i)(A)(1); Approved _____, _____, 40 CFR 52.220(c)(66)(i)(B); Approved _____, _____, 40 CFR 52.220(c)(42)(xvi)(A); Approved 9/8/78, 43 FR 40011, 40 CFR 52.220(c)(39)(iii)(C)]